REMARKS

Attached hereto is an Excess Claims Fee letter for one excess independent claim and one excess total claim.

It is noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Claims 1-21 are pending in the present Application. New claims 12-21 are added above. Claims 1, 2, and 6-11 stand rejected under 35 USC §103(a) as unpatentable over US Patent 6,540,707 to Stark et al., further in view of US Patent Publication 2002/0072828 to Turner et al. Claims 3-5 stand rejected under 35 USC §103(a) as unpatentable over Stark, further in view of Turner, and further in view of US Patent 5,799,296 to Wang.

Claims 3-5, 8, and 9 stand rejected under 35 USC §112, first paragraph, as failing to comply with the written description requirement. The Examiner alleges that Applicants did not possess the invention as defined in these claims and is understood as alleging that the concepts defined in these claims are "new matter". However, "new matter" issues for claims arise only for claim amendments, not the original claims. Clearly, Applicants possessed the subject matter of these claims at the time of filing. However, in order to address the issue of antecedent basis, Applicants have amended the specification to include coverage in the specification for the subject matter of these claims.

Accordingly, Applicants request that the Examiner reconsider and withdraw these rejections for claims 3-5, 8, and 9.

The prior art rejections based on Stark are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

As described and claimed, for example by claim 1, the present invention is directed to a computerized method of at least one of designing, constructing, and adjusting an orthodic, as follows.

Pressure and acceleration sensors are provided. The sensors are mounted in a joint-enclosing device. The data produced by the sensors during actual operation of the joint-enclosing device worn by a specific individual is transmitted.

A computer receives the sensor signals for analysis. A stress-and-acceleration map is created, based on the sensor-based data and this stress-and-acceleration map is used to create a virtual orthodic model.

The advantage of the present invention is that an optimal model can be derived from the dynamic pressure and acceleration sensor data. The conventional method of designing and constructing orthodics were constrained by static fitting techniques alone.

II. THE PRIOR ART REJECTION

The Examiner alleges that US Patent 6,540,707 to Stark et al., further in view of US Patent Publication 2002/0072828 to Turner et al. renders obvious claims 1, 2, and 6-11, and that Stark/Turner, further in view of US Patent 5,799,296 to Wang renders obvious claims 3-5.

Applicants submit that the rejection currently of record fails to meet the burden of a *prima facie* rejection under 35 USC §103(a) for the following reasons.

First, the purpose of Stark is entirely different from that of the present invention. Stark is intended to for corrective/exercise orthoses (see Abstract, column 2 at lines 46-49, claim 1). As described at lines 46-65 of column 2, the contribution of the orthopedic restraining device in Stark involves the bladders with pressure sensors. These bladders absorb some of the forces, and the pressure sensors provide signals for monitoring. However, there is no intent whatsoever in Stark to use these pressure sensors to develop a force or pressure map to optimize adjustment, design, or construction of an orthodic, as in the present invention.

In contrast to Stark, the present invention improves conventional methods of designing orthodics by providing dynamic data, in addition to the static data currently available, in the design process. Stark does not in any way even suggest the problem addressed in the present invention, let alone suggest the solution of providing dynamic data or the technique of developing a stress-and-acceleration map. It is clearly the Examiner himself modifying Stark to read on the present invention defined by the claims, clearly using the claims as a road map.

That is, neither Stark nor Turner nor Wang teaches or even suggests the calculation of a stress-and-acceleration map for joint orthodics. This feature of the present invention provides the aspect of dynamic data into the modeling of joint orthodics that is missing in conventional methods of designing these orthodics. Indeed, neither Stark, Turner, or Wang even suggest any aspect of designing orthodic device. The Examiner introduces this aspect of design into Stark, and clearly this introduction is impermissible hindsight.

The analysis currently of record, therefore, clearly violates a number of evaluation guidelines in the MPEP, as follows.

First, the evaluation currently of record violates the MPEP §2143.01 guideline: "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination" (emphasis in MPEP itself). Clearly, under this guideline, since Stark makes no suggestion whatsoever to develop a stress-and-acceleration map, a fact conceded by the Examiner in the rejection, the mere fact that possibly the sensors taught in the Stark orthodic device might be appropriate for another use than monitoring is irrelevant to the evaluation of the present invention.

Second, the evaluation currently of record violates the MPEP §2143.01 guideline: "A statement that modifications of the prior art to meet the claimed invention would have been " ' well within the ordinary skill of the art at the time the claimed invention was made' " because the references relied upon teach all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references."

More specifically, the motivation in the rejection currently of record to combine Turner with Stark is: "... because it would provide for using the sensors data that has been analyzed and trained to form a custom design physical entity in financial or medical reason." Clearly, this statement by the Examiner is merely a conclusory statement that the Examiner purports to be true if the references were to be combined. That is, this conclusory statement is tantamount to the above-proscribed guideline that obviousness is not present simply because the Examiner considers that all aspects of the claimed invention were individually known.

Third, along this line, Applicants submit that, even if Turner were to be combined with Stark, the techniques in Turner would not provide a stress-and-acceleration map, as the Examiner

seems to suggest. That is, paragraphs 41 and 42 on page 5 describe an I/O mapping. To one of ordinary skill in the art, this concept of mapping an input and output is entirely different from a map that results from stress and accelation sensors. The Examiner is clearly attempting to take words out-of-context to "piece together" a rejection. Applicants submit that this technique of taking words out-of-context will typically result in a rejection that is devoid of engineering common sense.

Moreover, Applicants submit that the Examiner mischaracterizes paragraph 53 on page 6 of Turner. That is, this paragraph describes using the model developed "... to control an empirical process (e.g., polymer process) based on the optimized model...." This implementation of a controller in an industrial process is a different concept than that of using the bladder sensor data from Stark to construct an orthodic device. At most, paragraph 53 of Turner would suggest, if Turner were to be incorporated into Stark, using a model derived from the bladder sensor data to control an orthodic device, not as concluded by the Examiner, as a basis to design and construct the orthodic device.

Therefore, even if Turner were to be incorporated into Stark, the resultant combination would still not provide the invention defined by the independent claims.

Fourth, according to the MPEP §2143.01 guideline: "If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." In the present evaluation, it is clear that the Examiner intends to convert the purpose of the portable orthopedic restraining device in Stark from being the actual corrective device attached to the user into that of a temporary sensing device for design purpose only. As such, the Examiner's intent is proscribed by this guideline.

Fifth, in a sense tying the above issues together, is another evaluation guideline, as described in MPEP §2141.02: "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claims invention as a whole would have been obvious" (emphasis in MPEP itself).

That is, since neither Stark nor Turner suggests using the bladder sensors of an orthodic for use in designing an optimum orthodic device by providing dynamic data as inputs into the

design process, the the Examiner is clearly using the present application as a roadmap to "kludge together" various prior art references to read on the claimed invention. There is clearly no suggestion in any of the prior art of record to use dynamic data to design an optimum orthodic device.

As explained in lines 9-15 of page 1 of the specification, the advantage of introducing dynamic data into the design, construction, and adjustment of orthodics is that of taking into account the stresses and accelerations experienced by the joint during normal operation, in order to optimize design or adjustment.

The Examiner relies upon Wang as demonstrating that interpolation techniques were known. Even if the incorporation of Wang into Stark/Turner does not have the same problems discussed above for the combination of Turner with Stark, this third reference does not overcome the basic deficiencies identified above.

Hence, turning to the clear language of the claims, there is no teaching or suggestion of " ... creating a stress-and-acceleration map based on said sensor-based data; and ... creating a virtual orthodic (model) for support and comfort based on said stress-and-acceleration map", as required by claim 1. A similar argument applies to independent claims 11 and 14.

Finally, relative to the rejection for claim 2, it is noted that the Examiner's characterization of lines 49-57 of column 2 of Stark is incorrect. That is, there is no suggestion whatsoever to use "temperature, moisture, and skin conductivity sensors".

Moreover, relative to the rejection for claim 9, Applicants can find no reference in paragraph 0018 on page 2 of Turner to either expert systems or fuzzy logic techniques.

Relative to the rejection for claim 10, it is noted that lines 22-31 of column 5 of Stark do not even suggest a "virtual orthodic", let alone optimizing a virtual othodic.

Relative to the rejection for claims 3-5, lines 37-40 of Wang column 3 teach using a "neural network to compute or interpolate the outputs". This is a different concept from that characterized by the Examiner that these lines disclose "... the use of interpolation techniques to analyze data over a period of time."

For the reasons stated above, the claimed invention is fully patentable over the cited references.

Further, the other prior art of record has been reviewed, but it too, even in combination with Stark, Turner, or Wang, fails to teach or suggest the claimed invention.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-21, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

Date: 10/9/03

Frederick E. Cooperrider
Reg. No. 36,769

McGinn & Gibb, PLLC
8321 Old Courthouse Road, Suite 200
Vienna, Virginia 22182
(703) 761-4100
Customer No. 21254